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Equipment for point-of-sale presentation of audiovisual recording supports, packaging cases and anti-theft cases employed.

The present invention relates to the field of point-of-sale presentation of audiovisual articles such as compact discs, CD-ROMs, video cassettes or audio cassettes, DAT cassettes, or any equivalent products.

In the state of the art, these articles are packaged in cases, generally made of plastics material, sealed with a sheet of Cellophane. In certain cases, these articles are protected from theft from the display by anti-theft cases formed of over-packaging which is removed at the moment of payment for the article. These anti-theft cases have, on one of the inside faces, a magnetic, magneto-acoustic, or electro-magnetic label triggering an alarm in case of attempted fraud, on passage in the proximity of checking terminals arranged at the exit from the place of sale.

These articles are presented on storage furnishings. In certain cases, these furnishings includes a player and headphones allowing customers to listen to the article which is presented.

This equipment in accordance with the state of the art is not totally satisfactory. Listening through headphones or from a listening point with a loudspeaker only allows presentation of the content of a small number of presented articles. In addition, only a relatively small number of customers can simultaneously listen to a music sample, the number of headphones and listening points not being unlimited.

The object of the present invention is to remedy these disadvantages by proposing improved equipment.

To this end, the invention includes in its most general embodiment equipment for point-of-sale presentation of audiovisual recording supports such as compact discs, CD-ROMs, video cassettes or audio cassettes, of the type including first means for packaging of the said recording supports, optionally second means for over-wrapping the packagings in order to prevent theft of the articles, and third means for storage of the articles, characterised by the fact that at least one of the first two means incorporates a circuit for storage and reproduction of a sound and/or video sequence.

Advantageously, the third means presents a sensor able to co-operate with a transmission means integrated in the storage and reproduction circuit incorporated in one of the said first two means, the said sensor being connected to an amplification circuit for reproduction of the sound and/or video sequence through a loudspeaker integrated in the third means. This embodiment allows a choice to be offered between personal listening, of low level, or listening amplified by means of more powerful amplifiers which are not subject to the electrical consumption constraints of the furnishing forming the third element of the equipment.

Preferably, the sensor consists of a coil permitting electro-magnetic coupling with the circuit for storage and reproduction provided in one of the first two means.

In accordance with a first modified embodiment, the circuit for reproduction of the sound and/or video

sequence is integrated in the packaging case of the audiovisual recording support.

Advantageously, the case incorporates an electronic circuit including a memory for storing a digital sound and/or video sequence, a circuit for reproduction and amplification of the said digital sound and/or video sequence, an electrical power-supply battery and an acoustic transducer, as well as a starting switch which can be operated by pressure on one of the faces of the case. Optionally, the contactor also permits passage to successive sound ranges selected by repeated pressures.

In accordance with a second modified embodiment, the circuit for reproduction of the sound sequence is integrated in an anti-theft protection case having a lockable housing to receive a packaging of the audiovisual recording support.

In accordance with a particular embodiment, certain anti-theft cases have a projecting part acting as separators in a line of cases.

The invention also relates to an anti-theft case for equipment in accordance with at least one of the preceding claims, of the type formed of a rigid envelope having an opening for introduction of an audiovisual article such as a compact disc, CD-ROM, cassettes, means for locking this article in the said envelope and on one of the inside faces a label able to trigger an alarm characterised by the fact that the said case incorporates a circuit for storage and reproduction of a sound sequence.

Advantageously, the circuit for storage and reproduction of a sound sequence includes a random access memory connected to a connector provided on the outer surface of the case for recording in the said memory a digital sound sequence from an external source.

Preferably the circuit for storage and reproduction of a sound sequence includes a rechargeable power supply connected to a connector provided on the outer surface of the case.

In accordance with a modified embodiment, the anti-theft case has a projecting part forming a separator when a plurality of cases are placed in a line, this separator including a housing for the circuit for storage and reproduction of a sound sequence.

In accordance with another modified embodiment, the packaging case or the anti-theft case also includes a screen, in particular a flat screen with liquid crystal (L.C.D.) technology for displaying text or graphic data or digital videos stored in the memory of the circuit integrated in the case.

The invention also relates to a case for packaging an audiovisual article such as a compact disc, CD-ROM, or cassettes for equipment as described in at least one of the preceding claims characterised by the fact that it incorporates a circuit for storage and reproduction of a sound sequence, and a furnishing for the point-of-sale presentation of audiovisual articles, for equipment as described in at least one of the preceding claims characterised by the fact that it includes a sensor for receiving the electromagnetic signal transmitted by a

packaging case and/or an anti-theft case including a circuit for reproduction of the sound sequence provided with a radiating element.

The invention will be better understood on reading the following description, with reference to the attached drawings, in which:

- figure 1 shows a sectional view of an example embodiment of a case in accordance with the invention;
- figure 2 shows the schematic diagram of an example embodiment of the circuit for storage and reproduction of a sound sequence;
- figure 3 shows an anti-theft case in accordance with the invention;
- figure 4 shows an anti-theft case in accordance with a modified embodiment of the invention;
- figure 5 shows the schematic diagram of a circuit for an anti-theft case in accordance with the invention.

Figure 1 shows a sectional view of an example embodiment of a case in accordance with the invention. In the example described, this is a packaging for a compact disc (1). The compact disc (1) is packaged in known manner in a case (2) made of transparent plastics formed of two shells hinged by a lateral hinge, the case being sealed in an outer envelope (3) made of Cellophane. The main face of the case reveals a cover (4). Inside the case (2) is placed a plate (5) having at its centre radial vanes (6) for centring the compact disc (1), extending a cylindrical protuberance (7), the upper surface of which forms a support surface for the disc. This protuberance

defines a hollow space (8) of cylindrical form used to house a circuit for storage and reproduction of a sound sequence (9). This circuit (9) includes a printed circuit (10) onto which is soldered, on one of its faces, a piezo-electric transducer (11) operating a diaphragm (12), for example made of aluminium, to transmit electrical energy as a sound signal.

The other face of the printed circuit (10) supports electronic components, in particular an integrated circuit (13). This integrated circuit is advantageously made in the form of an ASIC encapsulated with the other components in a resin, to form a block having a diameter and a height compatible with the dimensions of the protuberance (7). A cylindrical battery or accumulator (14) is placed above the circuit (13). A connecting wire connects the pole formed by the lower face to the printed circuit (10). The end (15) of a rigid metal tab is positioned at rest at a small distance from the upper surface of the battery (14). The other end of this strip is soldered onto the printed circuit (10). Contact is established by means of a stud (16) which at rest is pushed back by the said strip (15). When the user applies a pressure to the centre of the upper face of the case (1), the stud (16) presses the end (15) of the strip onto the upper surface of the battery (14), and thus establishes an electrical contact powering the circuit for storage and reproduction of a sound sequence (9).

The case (1) is protected by an anti-theft case (19) of known type.

A modified embodiment consists of embedding the components of the circuit for storage and reproduction of

a sound sequence (9) in a substantially square printed circuit of larger dimension, which is housed under the plate (5). In this case, the components are housed in cavities present in this plate, generally at the angles of the plate. Contact is established by means of a contactor soldered onto the printed circuit, the button for operating this contactor projecting through the central hole of the compact disc and being able to be operated by a pressure on the front face of the case which is elastically deformable. The battery (14) can be connected to an electrical coil permitting recharging by induction.

Figure 2 shows the schematic diagram of an example embodiment of the circuit for storage and reproduction of a sound sequence. This circuit includes a rewritable memory (20) of 128 kilobytes and a digital/analogue converter (21) the output of which is connected to an operational amplifier (22) delivering an output signal to a piezo-electric transducer (23). A clock (24) delivers a clock signal to the memory (20) and to the A/D convertor (21). The electrical power supply is provided by a battery (14) and a switch which can be operated from outside the case, for example by a pressure on the upper surface of the case.

Figure 3 shows an anti-theft case in accordance with the invention. In known manner, this case has a rigid envelope (27) including a slot (28) for introduction of the article to be protected. Openings are made in the main faces to present windows (29) revealing the cover of the protected article. In the example embodiment described, a lock (30) blocks the introduction slot (28). This lock is unlockable by means of a specific tool, for

example a magnet, acting on a magnetic barrel or on a locking strip.

This case has a housing (31) for the circuit for storage and reproduction of a sound sequence (9). In the example described, the rigid envelope (27) is extended at the upper face by a projecting part (32) forming a separator. This projecting part allows the start of a new category to be marked in a line of cases, for example of a new singer, or a new type of music. This projecting part (32) presents text (33) or graphical information. It can also include information in relief (34), in particular information in Braille allowing the blind to identify the product. In the example embodiment described, relating to an anti-theft case also having the function of a separator, the capsule (35) operated by the piezo-electric transducer is placed on the projecting part (32). A contactor accessible from outside permits activation of the reproduction of a sound sequence.

The anti-theft case also presents, on one of the surfaces (36) accessible from the outside, a first connector allowing recharging of the power-supply battery. This connector can consist of two metal parts flush with the surface, or any other known connector for transmission of electrical energy. Recharging can also be effected as indicated above by inductive coupling, by means of an electrical coil contained in the housing (32).

A second connector (50) can be present on one of the surfaces of the case, to allow recording of a new sequence in the random access memory of the circuit for storage and reproduction of a sound sequence. This connector also consists of flush contacts or of any other

known connector for transmission of low-energy digital signals. Optionally, the two connectors can be grouped in a multi-functional connecter. Another solution allowing the use of electrical connectors to be avoided, consists of providing the circuit with electro-magnetic coupling coils, allowing the recording of digital data in the memory by induction.

The use of the device is as follows: the case including the circuit for storage and reproduction of a sound sequence, whether this is the packaging case or the anti-theft case, is placed on display. The customer wishing to listen to a sound extract places the case close to his ear. He presses on the appropriate zone, i.e. the surface of the packaging case in the example described with reference to figure 1, or on the contactor for the example shown in figure 3, which triggers the reproduction of the stored sound sequence, which can be heard by means of the transducer provided on the case.

The person responsible for the display can recharge the power-supply battery by placing the case in a suitable charger. He can also, in particular for the version in which the circuit for storage and reproduction of a sound sequence is placed in the anti-theft case, record a new sound sequence. This sequence can be recorded directly from the corresponding audiovisual support, by means of a reader intended for this purpose and equipment for digitisation and recording of the selected sequence in the random access memory of the circuit for storage and reproduction of a sound sequence using the connector provided for this purpose.

A modified embodiment consists of loading the sequence from a dedicated server containing the pre-programmed sequences. Selection of the sequence can be automated by a bar-code reader (39) or by any other equivalent marking means, attached to the label on the case. In accordance with a preferred modified embodiment, the bar-code used for coding the sequence to be recorded in the memory is that appearing on the cover of the compact disc or of the corresponding recording support.

The invention also relates to a furnishing for presentation of audiovisual products including a circuit for storage and reproduction of a sound sequence (9) of the type described above. In an example embodiment, this furnishing includes a marked zone corresponding to the location of an electrical coil. This coil forms a sensor allowing sensing of the signal transmitted by the radiating element of the circuit for storage and reproduction of a sound sequence. This sensor delivers an electrical signal which is then amplified to allow broadcasting through loud-speakers with which the presentation furnishing is provided. It is thus possible for people wishing to listen to the sound sequence in more comfortable conditions to move the case of the disc which interests them towards the marked zone and to have the benefit of amplified listening and not only of listening at a lower sound level using the sound transducer integrated in the circuit for storage and reproduction of a sound sequence. This listening system will be the more useful when the case has an LCD screen on its front face.

Optionally, an electroluminescent diode attracts the attention of the customer.

Figure 4 shows an anti-theft case in accordance with a modified embodiment of the invention.

The anti-theft case (50) contains as above a compact disc case (51), and is positioned on a presentation furnishing including a rail (52) for positioning articles and also providing the electrical power supply for the electronic circuits integrated in the anti-theft case, or, in an equivalent embodiment, in a compact disc case.

This rail includes two conductive tracks (53, 54) supplied with direct current. The case is provided with contact studs (55, 56) coming into contact with the conductive tracks (53, 54). These contact studs are connected to the electronic circuit in known manner by connecting wires.

Figure 5 shows the schematic diagram of a circuit for an anti-theft case in accordance with the invention. This is a modified embodiment in which electrical power is supplied by a piezo-electric generator (60) providing an electrical current under the effect of pressure applied to one of its faces. This piezo-electric generator is connected to an electrical accumulator or to a capacitance (61) formed by a capacitor. This power supply can replace power supplied by an electric battery, or complement such a power supply. In the latter case, the piezo-electric generator is used to recharge the electric battery. In the example described, the circuit also includes a circuit for reproduction of digital images (63) connected to a display screen (64). The piezo-electric element is operated by a button flush with the

surface of the case, or directly by deformation of the surface of the case.

The invention is described above by way of a non-limiting example. The man skilled in the art will be able to create various modifications without thereby departing from the scope of the invention.

Claims

1. Point-of-sale presentation equipment for audiovisual recording supports such as compact discs, CD-ROMs, video cassettes or audio cassettes, of the type including first means for packaging the said recording supports, optionally second means for over-wrapping packagings in order to prevent theft of the articles and third means for storage of the articles, characterised by the fact that at least one of the first two means incorporates a circuit for storage and reproduction of a sound sequence (9) by a sound transducer and/or a video sequence by a display screen (40).

2. Presentation equipment as described in claim 1, characterised by the fact that at least one of the first two means incorporate a circuit for storage and reproduction of a sound sequence (9) by a sound transducer and/or a video sequence by a display screen (40) and means for electrical connection to a power supply source provided on the third means.

3. Presentation equipment as described in claim 2, characterised by the fact that the connection means are formed by conductive studs suitable to come into contact with electrical tracks provided on the third means.

4. Presentation equipment as described in claim 1, characterised by the fact that the electronic circuit is supplied with power by a piezo-electric generator (60).

5. Presentation equipment as described in claim 1, characterised by the fact that the electronic circuit is

supplied with power by an electric battery recharged by a piezo-electric generator (60).

6. Presentation equipment as described in claim 4 or 5, characterised by the fact that the piezo-electric generator is associated with an electrical capacitance.

7. Anti-Theft case for equipment as described in at least one of the preceding claims, of the type formed of a rigid envelope presenting an opening for introduction of an audiovisual article such as a compact disc, CD-ROM, cassettes, means for locking this article in the said envelope and on one of the inside faces a label able to trigger an alarm, characterised by the fact that the said case incorporates a circuit for storage and reproduction of a sound sequence (9), the case presenting electrical contact studs suitable to co-operate with electrical power supply tracks provided on a storage furnishing.

8. Case for packaging an audiovisual article such as a compact disc, CD-ROM, cassettes, for equipment as described in at least one of the preceding claims, characterised by the fact that it incorporates a circuit for storage and reproduction of a sound sequence (9), the case presenting electrical contact studs suitable to co-operate with electrical power supply tracks provided on a storage furnishing.